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10/549,387	06/29/2006	Brian Gordon Stewart	031749/297914	1924

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EXAMINER	
PATEL, DHAVAL V	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/549,387	STEWART, BRIAN GORDON	
	Examiner	Art Unit	
	DHAVAL PATEL	2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 October 2010*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *58-74* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *58-61,63,64 and 69-74* is/are rejected.

7)☒ Claim(s) *62 and 65-68* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed on 10/20/2010 have been fully considered but they are not persuasive.

a). Applicant's argument regarding claim that, "The Office Action has stated, with respect to Ma, that" ... pilot is inserted into data, data and pilots" are added to each other which is" construed as convolution" However, this is incorrect. As shown above, the pilots are simply inserted into the frames. The term "insert" is defined as "put or set into, between, or among." See http://www.thefreedictionary.com/insert. Thus, there is no form of convolution or any mathematical mixing of the pilot information with data information taking place in Ma prior to inserting the pilots. Although the pilot blocks described in Ma are inserted with data blocks, the data contained within the pilots is not convoluted with any of the data being transmitted. Hence, Ma fails to teach or suggest convoluting real data in each real data block with at least some of the control data in the control data blocks, as recited in Claim 58.

In response to applicant's specific argument, examiner respectfully disagrees with the applicant's comments. col. 5 lines 20-25 discloses that the inserting pilot symbols in an identical scattered pattern involves for each point in identical scattered pattern inserting a number of pilot symbols on a single sub carrier for N consecutive OFDM symbols also , col. 5 lines 28-32 also discloses perform space time block coding, so, there is some phase change of data based on pilot symbols since, pilots are inserted into the data symbols in time manner which is also a phase relationship. see

col. 5 lines 55-67 discloses that channel estimation is performed at the receiver side using the pilot symbols in the received frames, so, using pilot symbols phase or frequency information, data symbols are retrieved, that also shows that pilots has some specific phase or frequency relationship with the data when inserted at the transmitter with in time or frequency direction. Furthermore, see, col. 10 lines 65-67 also teaches two pilot symbols are inserted in an STBC block and transmitted. Also, see col. 11 lines 10-25 also shows the functional relationship between the pilot and data symbols transmitted from each antenna. Therefore, pilot is convoluted with the data to be transmitted since, there is cetain phase relationship between them, because data frames are modified when scattered pilot symbols are inserted.

Therefore, for the above mentioned reasons, examiner has maintained the same grounds of rejections.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. **Claims 58-61 and 73 are rejected under 35 U.S.C. 102(e) as being anticipated by Ma et al. (US 7,248,559) (hereafter Ma).**

Regarding claim 58, Ma discloses a method for encoding data for transmission over a telecommunications network comprising embedding a control data block within a plurality of real data blocks (Fig. 2, coding, modulation, 12, pilot insertion block, 24 which inserts the pilots in the data signal, here, mapping of the data would generate the I and Q data since mapping is done in I-Q form); convoluting real data in each real data block with at least some of the control data in the control data blocks (Fig. 2, since pilot insertion in which the upper branch (16) generates the pilot insertion in the upper and lower branch since, pilot is inserted into data, data and pilots are added to each other which is construed as convolution); modulating or transforming the convoluted real data in the real data blocks with one or more sub-carrier signals; and modulating or transforming data in the control data block with every sub-carrier that is used to modulate the real data (Fig. 2, IFFT (26) which generates the transformation of pilot insertion data (24) which is convolved data for modulation, since, data and pilot are added together, both will be processed for IFFT modulation).

Regarding claim 59, Ma further discloses a method, wherein each of the control and real data blocks has m entries (Fig. 2, data generated from branch which is S/P converted and pilot block (230 has multiple symbols) such as P1 and P2), where m is an integer of one or more, and m sub- carrier transmission channels are provided (Fig. 2, IFFT, which is sub carriers), and each control data entry and each real data entry are modulated with the corresponding sub-carrier (Fig. 2, modulation, 12 which generates I

and Q data, and mapping on IFFT, since both pilot and data are combined, the IFFT modulation performed on both).

Regarding claim 60, Ma further discloses a method, wherein the step of convoluting involves phase angle convoluting each entry in each real data block with a phase angle of the corresponding entry in the control block (Fig. 2, convolving here is phase addition of pilot and data symbols).

Regarding claim 61, Ma further discloses a method, wherein the step of phase angle convoluting involves adding the phase angle of each entry of the control data block to the phase angle of the corresponding entry of each real data block (Fig. 2, convolving here is phase addition of pilot and data symbols).

Regarding claim 73, Ma further discloses a system for encoding data for transmission over a telecommunications network according to the method of claim 58, the system preferably being a personal mobile communications device or mobile/radio telephone or a computer with telecommunications capabilities or a digital broadcast radio or a digital television or set top box or any wireless networked device (col. 1 lines 19-23, OFDM high speed radio transmission, Fig. 6, wireless communications)

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in **Graham v. John Deere Co., 383 U.S. 1, 148 USPQ 459 (1966)**, that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows: ***(See MPEP Ch. 2141)***

a. Determining the scope and contents of the prior art;
b. Ascertaining the differences between the prior art and the claims in issue;
c. Resolving the level of ordinary skill in the pertinent art; and
d. Evaluating evidence of secondary considerations for indicating obviousness or nonobviousness.

6. **Claims 63, 64, 69, 70 are rejected under 35 U.S.C. 102(a) as being anticipated by Ma in view of Schafer et al. (WO 93/09622)(hereafter Schafer).**

Regarding claim 63, Ma does not explicitly disclose a method wherein each phase angle for control data is randomly assigned. However, in the same field of endeavor, Schafer teaches method, wherein each phase angle for the control data in the control data block is randomly assigned (col. 5 lines 20-26 discloses pilot phases are randomly chosen). Therefore, it would have been obvious to one of ordinary skilled in the art to generate the pilot with the randomized method of Schafer, to generate the orthogonal control blocks, as well known in the art.

Regarding claim 64, the combined teachings of Ma and Schefer further teaches a method, wherein each entry of the control data block has a phase angle that is a function of the phase angles of the corresponding entries of the real data blocks(col. 4 lines 10-15 discloses phase of the pilot sub carriers depends only on the sub carrier index p (l, k). if an additional phase rotation is a function of the sub carrier index and OFDM symbol, so, here, convolution is there since, there is a phase relationship between each symbol and phase of the pilot sub carrier),

Regarding claim 69, the combined teachings of Ma and Schefer further teaches a method as claimed in claim 58, wherein the step of modulating comprises frequency modulating the signal (col. 1 lines 15-20, OFDM modulation)

Regarding claim 70, the combined teachings of Ma and Schefer further teaches a method as claimed in claim 58, comprising receiving data for transmission to a receiver, dividing the data into N-1 data blocks and embedding a the control data block into the N-1 data blocks to provide a N block data transmission (col. 5 lines 10-20, pilot arrangement within the data with different pilot phase profile, and pilot phase is dependent upon the OFDM symbol, col. 5 lines 20-26 discloses randomizing the pilots phases).

7. **Claims 71 and 72 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ma and Schefer, as applied to claim 58 above, and further in view of Jasper et al. (WO 93/09622) (hereafter Jasper).**

Regarding claim 71, Ma and schefer do not explicitly disclose a method wherein the control data block is embedded substantially in the middle of the real data blocks. However, in the same field of endeavor, jasper teaches communication signal having a time domain pilot component in which page 10, lines 20-30 describes various pilot arrangements within information symbol. Fig. 1 describes pilot insertion process (108...110) and Fig. 4a-4d describes various pilot arrangement for sub channels 1-4 in which pilots symbols are embedded in substantially middle of the information system, therefore, it would have been obvious to one of ordinary skilled in the art at the time of the invention to combine the teachings of Jasper, into the system of Ma and Schefer, as a whole, so as to insert pilots in middle in random arrangement of pilots, the motivation is to provide robust technique in a varying multipath environment (page 4, lines 15-20).

Regarding claim 72, Ma and Schefer do not explicitly disclose wherein the plurality of control data blocks are embedded within the real data blocks. However, in the same field of endeavor, Jasper, teaches communication signal having a time domain pilot component in which Figs. 4a-4g teaches various pilot arrangements within information symbol, in which Fig. 4g describes having multiple pilot symbols are embedded within the information symbol, for example, in Fig. 4g, the two pilot symbols are inserted between the data symbols, therefore, it would have been obvious to one of ordinary skilled in the art at the time of the invention to combine the teachings of Jasper,

into the system of Schefer, as a whole, so as to incorporate multiple pilots within the information symbol, the motivation is to provide robust technique in a varying multipath environment (page 4, lines 15-20).

8. **Claim 74 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ma in view of Langberg et al. (US 5,852,850) (hereafter Langberg).**

Regarding claim 74, Claim discloses all the subject matter as described in claim 58, except for the method written by a computer code embodied in a computer readable-medium and having code or instructions for carrying out the method.

However, Landberg teaches that the method and apparatus for a transceiver warm start activation procedure with precoding can be implemented in software stored in a computer-readable medium and that configures and drives any suitable digital signal processor situated in communication device. The computer readable medium is an electronic, magnetic, optical or physical device or means that can be contain or store a computer program for use by or in connection with a computer related system or method (col. 1 lines 51-65). One skilled in the art would have clearly recognized that the method of Ma would have been implemented in software, The implemented software would perform same function of the hardware for less expense, adaptability and flexibility, therefore, it would have been obvious to one ordinary skilled in the art at the time of the invention was made to us the software as taught by Landberg in the Ma, in order to reduce cost and improve adaptability and flexibility of the communication system.

Allowable Subject Matter

9. Claims 62 and 65-68 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DHAVAL PATEL whose telephone number is (571)270-1818. The examiner can normally be reached on M-F 8:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shuwang Liu can be reached on 571-272-3036. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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Examiner, Art Unit 2611
12/12/2010
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